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Director – Spectrum Policy
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202-589-3785

Verizon Wireless
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Suite 400 West
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February 28, 2002

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
445 Twelfth Street, SW
Room: TW-A325
Washington, DC 20554

Re: **Ex Parte Meeting**

Establishment of Rules and Policies for the Satellite Digital Audio Radio Service in the 2310-2360 MHz Band, IB Docket No. 95-91

Dear Mr. Caton:

On February 25, 2002, William Wiltshire of Harris, Wiltshire & Grannis (representing AT&T Wireless), Karen Possner and Neale Hightower (by telephone) of BellSouth, Mary O'Connor of WorldCom, Paul Sinderbrand of Wilkinson Barker Knauer (representing the Wireless Communications Association International), and the undersigned met with David Furth, Ron Netro, Tom Stanley, and Marty Liebman of the Wireless Telecommunications Bureau and Rick Engelmann of the International Bureau to discuss the Commission's pending Notice of Proposed Rulemaking on SDARS terrestrial repeaters. Specifically, we discussed our February 19, 2002 filing in which we proposed the use of a power flux density ("PFD") limit in the 2320-2345 MHz band in lieu of a power cap to guard against harmful interference to WCS licensees from high-power SDARS terrestrial repeaters.¹

The WCS Coalition's proposal is patterned after the Commission's recent decision in the *Lower 700 MHz Order*, where a PFD limit was adopted to facilitate the operation of two services operating at very disparate power levels. The basic premise of the PFD proposal – to look at actual interference at the affected receiver – would appear to represent a workable solution for allowing both services to operate without harmful interference. Under this proposal, the SDARS licensees could operate at power levels

¹ See Ex Parte Presentation of AT&T Wireless Services, Inc., BeamReach Networks, Inc., BellSouth Corporation, Verizon Wireless, Inc., Wireless Communications Association International, Inc., and WorldCom, Inc. (collectively "WCS Coalition"), filed February 19, 2002.

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above 2 kW (perhaps significantly above 2 kW) as long as the PFD levels that affect the WCS receivers are maintained at adequate levels.

There is substantial evidence in the record as to the level of protection required by WCS licensees to provide adequate service to their customers. Analysis has shown that the operations of SDARS terrestrial repeaters will cause harmful interference to WCS operations in the form of blanketing interference and intermodulation distortion. This interference will create substantial exclusion zones within which WCS operators will not be able to provide service. Even a 2 kW repeater will produce an exclusion zone that extends 2 km or more from the terrestrial repeater. However, WCS proponents have indicated their willingness to live with such a power cap given that 2 kW is the standard power limit in the band.

Our PFD proposal, therefore, is based on the premise that the PFD levels produced by SDARS repeaters should not exceed that which is necessary for acceptable WCS operations outside a “2 kW exclusion zone” – i.e., the PFD that would be produced by a 2 kW repeater at a distance of 2 km from the terrestrial repeater, or $7.9 \mu\text{W}/\text{m}^2/\text{MHz}$. Adherence to this limit will ensure that WCS operators can successfully provide service to customers outside the “2 kW exclusion zone.”

Importantly, the WCS Coalition has demonstrated that its proposed PFD limit would provide SDARS licensees significant margin in meeting their required receive signal levels. The SDARS licensees have previously told the Commission that their repeater networks are designed to ensure a -77 dBm signal level to their receivers. Our proposed PFD would result in SDARS signal levels that are more than 37 dB higher than this level.

We noted that many of the installations already deployed by the SDARS licensees, including many operating above 2 kW, would not have to be modified. Some could meet the limit with modest adjustments to down tilt, EIRP, or antenna height (or some combination of the three). Others would require more significant modifications. To illustrate this point, we included in our February 19th filing an example of how our PFD proposal would affect SDARS repeater deployments in a sample market (Atlanta). In response to a request by the Staff, we are providing additional information (attached) regarding the technical data that was used in our analysis of the Atlanta market.²

² The chart included in our February 19th filing was based on actual spreadsheet modeling of four out of the eleven XM Atlanta sites and all five Sirius Atlanta sites. Seven XM sites were not modeled (and do not appear in the spreadsheet) because they used the same antennas as the four modeled sites and had EIRPs and antenna heights that were close to those used in the modeled sites. After further review of our study, we have determined that the estimation method used on the non-modeled sites resulted in inaccurately reporting some as “meets requirement as is.” These sites would actually have to reduce EIRP by modest amounts (generally less than 1 dB) to meet our proposed PFD limit.

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While the basic premise is the same, we note that there are important differences between our PFD proposal and the methodology employed by the Commission in the lower 700 MHz band. The 700 MHz PFD rule was adopted to address interference from a theoretical high-power broadcast station into theoretical low-power mobile receivers, which is expected to occur when the mobiles are in close proximity to the broadcast station. The PFD limit is specified at ground level, because mobiles typically operate on the ground.

Conversely, WCS is a fixed service. Moreover, the WCS and SDARS interference scenario is based on substantial evidence that has been presented in the record of this proceeding. As the record clearly shows, there is a significant potential for high-power SDARS repeaters to cause harmful interference to fixed WCS customer premises equipment ("CPE") in areas that are well beyond the area immediately surrounding the repeater. Thus, it is absolutely critical that the PFD requirement not be limited to only the area immediately surrounding the SDARS terrestrial repeater. Moreover, the PFD should not be measured on the ground. Fixed WCS CPE will be installed on the roofs of single-family homes, apartment complexes, and office buildings that are 20-100 feet (or more) in height above the ground. Thus, we proposed that the PFD be measured at a height of 30 meters above the ground.

The WCS Coalition believes that its PFD proposal may represent a more flexible approach for accommodating both SDARS and WCS than that afforded by a strict power cap. We urged the Commission to adopt this proposal. Please include a copy of this ex parte presentation in the record for the above captioned proceeding. If you have any questions, you may call me on (202) 589-3785.

Respectfully submitted,

/s/

Donald C. Brittingham

Attachment

cc: Rick Engelmann
David Furth
Marty Liebman
Ron Netro
Tom Stanley
Mary O'Connor (WorldCom)
Karen Possner (BellSouth)
Paul Sinderbrand (Counsel for WCAI)
William Wiltshire (Counsel for AT&T Wireless)

40	45	50	55	60	65	70	75	80	85		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
-12.8	-21.2	-22.7	-17.4	-16	-19.5	-28	-25.4	-22.2	-22.7		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
0.240734226	0.202	0.169498125	0.141441923	0.116624754	0.094194147	0.073521987	0.05412574	0.03561805	0.01767271		
314.256213	285.6711396	263.6922724	246.5964669	233.2495088	222.8823396	214.96391	209.125788	205.1161756	202.7716072		
0.000145716	2.54883E-05	2.11777E-05	8.2054E-05	0.0001266	6.1933E-05	9.40464E-06	1.8082E-05	3.92712E-05	3.58145E-05		
145.7155024	25.48829405	21.1776954	82.05400874	126.5995109	61.93300998	9.404644797	18.0824936	39.27115572	35.81452673		
29.14310048	5.09765881	4.235539081	16.41080175	25.31990218	12.386602	1.880928959	3.61649873	7.854231144	7.162905345		
-37.04917277	-44.62082266	-45.42544337	-39.54323232	-37.65991007	-40.76500848	-48.95080638	-46.1116471	-42.74349353	-43.14363819		
107.3984711	99.82682119	99.02220048	104.9044115	106.7877338	103.6826354	95.49683748	98.3359967	101.7041503	101.3040057		
40	45	50	55	60	65	70	75	80	85		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
-15.6	-23.9	-20.5	-16.3	-16.8	-22.2	-29.6	-23.4	-22.1	-23.3		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
0.240734226	0.202	0.169498125	0.141441923	0.116624754	0.094194147	0.073521987	0.05412574	0.03561805	0.01767271		
314.256213	285.6711396	263.6922724	246.5964669	233.2495088	222.8823396	214.96391	209.125788	205.1161756	202.7716072		
7.64726E-05	3.13888E-05	3.51462E-05	0.000105706	0.000105301	3.326E-05	6.50642E-06	2.8659E-05	4.01859E-05	3.11931E-05		
76.47258273	13.68802434	35.14622602	105.70604	105.3008866	33.2599956	6.506424541	28.6588211	40.18589845	31.19314877		
15.29451655	2.737604868	7.029245204	21.141208	21.06017732	6.65199912	1.301284908	5.73176421	8.03717969	6.238629754		
-39.84917277	-47.32082266	-43.22544337	-38.44323232	-38.45991007	-43.46500848	-50.55080638	-44.1116471	-42.64349353	-43.74363819		
104.5984711	97.12682119	101.2222005	106.0044115	105.9877338	100.9826354	93.89683748	100.335997	101.8041503	100.7040057		
40	45	50	55	60	65	70	75	80	85		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
0.240734226	0.202	0.169498125	0.141441923	0.116624754	0.094194147	0.073521987	0.05412574	0.03561805	0.01767271		
314.256213	285.6711396	263.6922724	246.5964669	233.2495088	222.8823396	214.96391	209.125788	205.1161756	202.7716072		
3.11534E-05	1.4667E-05	5.70005E-05	0.000113266	7.28504E-05	1.45185E-05	1.15702E-05	3.5258E-05	3.75037E-05	2.36624E-05		
31.153422	14.66698233	57.00050424	113.2660625	72.85041462	14.51851466	11.57024079	35.2580525	37.50366256	23.66242315		
6.230684399	2.933396466	11.40010085	22.6532125	14.57008292	2.903702932	2.314048159	7.05161051	7.500732512	4.73248463		
-43.74917277	-47.02082266	-41.12544337	-38.14323232	-40.05991007	-47.06500848	-48.05080638	-43.2116471	-42.94349353	-44.94363819		
100.6984711	97.42682119	103.3222005	106.3044115	104.3877338	97.38263538	96.39683748	101.235997	101.5041503	99.50400567		
40	45	50	55	60	65	70	75	80	85		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
0.240734226	0.202	0.169498125	0.141441923	0.116624754	0.094194147	0.073521987	0.05412574	0.03561805	0.01767271		
314.256213	285.6711396	263.6922724	246.5964669	233.2495088	222.8823396	214.96391	209.125788	205.1161756	202.7716072		
3.11534E-05	1.4667E-05	5.70005E-05	0.000113266	7.28504E-05	1.45185E-05	1.15702E-05	3.5258E-05	3.75037E-05	2.36624E-05		
31.153422	14.66698233	57.00050424	113.2660625	72.85041462	14.51851466	11.57024079	35.2580525	37.50366256	23.66242315		
6.230684399	2.933396466	11.40010085	22.6532125	14.57008292	2.903702932	2.314048159	7.05161051	7.500732512	4.73248463		
-43.74917277	-47.02082266	-41.12544337	-38.14323232	-40.05991007	-47.06500848	-48.05080638	-43.2116471	-42.94349353	-44.94363819		
100.6984711	97.42682119	103.3222005	106.3044115	104.3877338	97.38263538	96.39683748	101.235997	101.5041503	99.50400567		

40	45	50	55	60	65	70	75	80	85		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
0.217947897	0.18288	0.153454541	0.128053955	0.105585817	0.085278345	0.066562876	0.04900255	0.032246678	0.015999927		
284.5107735	258.6313763	238.7328851	223.2552568	211.1716345	201.7857538	194.616831	189.331308	185.7012188	183.5785719		
8.04968E-05	3.78978E-05	0.000147283	0.000292666	0.00018237	3.75142E-05	2.98962E-05	9.1103E-05	9.69051E-05	6.11409E-05		
80.49681313	37.89777367	147.2826625	292.6663103	188.2369845	37.5141505	29.8961543	91.1027003	96.90509495	61.1409448		
16.09936263	7.579554734	29.45653205	58.53326205	37.64739689	7.502830101	5.97923086	18.2205401	19.38101899	12.22818896		
-39.62644348	-42.88909337	-37.00271408	-34.02050303	-35.93718078	-42.94227919	-43.92807709	-39.0889179	-38.82076424	-40.82090899		
104.8212004	101.5495505	107.4449298	110.4271408	108.5104631	101.5053647	100.5195668	105.358726	105.6268796	103.626735		
40	45	50	55	60	65	70	75	80	85		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
-19.5	-23.6	-18.4	-16	-18.4	-25.8	-27.1	-22.5	-22.4	-24.5		
0.105925373	0.066069345	0.120226443	0.158489319	0.120226443	0.051286138	0.044157045	0.07498942	0.075857758	0.059566214		
0.217947897	0.18288	0.153454541	0.128053955	0.105585817	0.085278345	0.066562876	0.04900255	0.032246678	0.015999927		
284.5107735	258.6313763	238.7328851	223.2552568	211.1716345	201.7857538	194.616831	189.331308	185.7012188	183.5785719		
5.83806E-05	2.74855E-05	0.000106817	0.000212257	0.00013652	2.72073E-05	2.16823E-05	6.6073E-05	7.02808E-05	4.43427E-05		
58.38060618	27.48549804	106.8172861	212.2573048	136.5195569	27.20727395	21.68229452	66.0725644	70.28077218	44.34269235		
11.67612124	5.497099608	21.36345722	42.45146096	27.30391137	5.441454789	4.336458905	13.2145129	14.05615444	8.86853847		
-41.02154435	-44.29319424	-38.39781495	-35.4156039	-37.33228165	-44.33738006	-45.32317796	-40.4840187	-40.21586511	-42.21600976		
103.4260995	100.1544496	106.0498289	109.03204	107.1153622	100.1102638	99.1244659	103.963625	104.2317787	102.2316341		

40	45	50	55	60	65	70	75	80	85		
-25	-25	-27	-27	-22	-28	-48	-33	-35	-45		
0.056234133	0.056234133	0.044668359	0.044668359	0.079432823	0.039810717	0.003981072	0.02238721	0.017782794	0.005623413		
-25	-25	-27	-27	-22	-28	-48	-33	-35	-45		
0.056234133	0.056234133	0.044668359	0.044668359	0.079432823	0.039810717	0.003981072	0.02238721	0.017782794	0.005623413		
0.160886735	0.135	0.11327845	0.094528018	0.077942286	0.062951534	0.049135982	0.03617314	0.023804142	0.01181097		
210.0227166	190.9188309	176.2299841	164.8045695	155.8845727	148.9560191	143.6639993	139.762284	137.0825926	135.5156781		
0.000113888	0.00013782	0.000102059	0.0001167	0.000412481	0.000113473	1.21987E-06	4.076E-05	2.67328E-05	2.73546E-06		
113.8878287	137.8200249	102.0587519	116.700135	412.4806529	113.4733151	1.219871128	40.7595965	26.73284853	2.73546254		
22.77756575	27.56400498	20.41175037	23.34002701	82.49613058	22.69466301	0.243974226	8.1519193	5.346569706	0.547092508		
-38.11945722	-37.29110711	-38.59572782	-38.01351676	-32.53019452	-38.13529292	-57.82109082	-42.5819316	-44.41377797	-54.31392263		
106.3281866	107.1565367	105.851916	106.4341271	111.9174493	106.3123509	86.62655303	101.865712	100.0338659	90.13372122		
40	45	50	55	60	65	70	75	80	85		
-25	-25	-27	-27	-22	-28	-48	-33	-35	-45		
0.056234133	0.056234133	0.044668359	0.044668359	0.079432823	0.039810717	0.003981072	0.02238721	0.017782794	0.005623413		
-25	-25	-27	-27	-22	-28	-48	-33	-35	-45		
0.056234133	0.056234133	0.044668359	0.044668359	0.079432823	0.039810717	0.003981072	0.02238721	0.017782794	0.005623413		
0.160886735	0.135	0.11327845	0.094528018	0.077942286	0.062951534	0.049135982	0.03617314	0.023804142	0.01181097		
210.0227166	190.9188309	176.2299841	164.8045695	155.8845727	148.9560191	143.6639993	139.762284	137.0825926	135.5156781		
2.11193E-05	2.55573E-05	1.89257E-05	2.16408E-05	7.64902E-05	2.10424E-05	2.26212E-07	7.5584E-06	4.95733E-06	5.07263E-07		
21.11930106	25.55727535	18.92572306	21.64081371	78.49020257	21.04243385	0.226212282	7.55843885	4.95732584	0.507262783		
4.223860212	5.11145507	3.785144612	4.328162742	15.29804051	4.208486771	0.045242456	1.51168777	0.991465168	0.101452557		
-45.43743494	-44.60908483	-45.91370554	-45.33149449	-39.84817224	-45.45327064	-65.13906854	-49.8999093	-51.73175569	-61.63190035		
99.01020891	99.83855902	98.53393831	99.11614937	104.5994716	98.99437321	79.30857531	94.5477345	92.71588816	82.8157435		